

# Therapeutic abortion and *Chlamydia trachomatis* infection

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**SUMMARY** *Chlamydia trachomatis* was isolated from the cervix of 30 of 218 (13·8%) women admitted for legal termination of pregnancy. During the first two weeks after the abortion seven of the 30 (23·3%) patients developed pelvic inflammatory disease. Four of these had serological evidence of recent active chlamydial infection. Thus, routine examination of patients for genital chlamydial infection before termination of pregnancy is recommended.

## Introduction

The presence of *Chlamydia trachomatis* in the cervix is a frequent causal factor in the epidemiology of pelvic inflammatory disease (PID).<sup>1-4</sup> One episode of PID may result in tubal dysfunction; tubal patency is rapidly impaired by recurrent infections and may later cause infertility.<sup>5</sup> PID due to *C trachomatis* may also occur without subjective symptoms.<sup>3</sup>

PID is a major complication after therapeutic abortion; the readmission rate in our hospital is about 4%, pelvic infections and retained products being the main causes.<sup>6</sup>

The aim of this study was to record the incidence of *C trachomatis* infections among patients admitted for legal abortion and to follow those harbouring chlamydia, particularly those in whom it caused post-operative infections.

## Patients and methods

### STUDY POPULATION

Two hundred and eighteen women admitted consecutively for termination of pregnancy in the first trimester in 1980 were included in the study. Abortion was carried out by dilatation and vacuum aspiration in all patients.

The diagnosis of PID was made on the clinical grounds of pelvic pain, adnexal masses, increased erythrocyte sedimentation rate, and fever. The patients who developed acute salpingitis were treated with doxycycline.

Patients who harboured *C trachomatis* were recalled for follow up about three months after the abortion.

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## ISOLATION OF *C TRACHOMATIS* AND *N GONORRHOEAE*

Before surgery specimens for culture of *C trachomatis* and *N gonorrhoeae* were obtained from the cervix and cultured within 24 hours. The chlamydial specimens were collected with cotton-tipped swabs and transported in a sucrose phosphate buffer (2SP). *C trachomatis* was cultured in cycloheximide-treated McCoy cells.<sup>7</sup>

Specimens for culture of *N gonorrhoeae* were collected with charcoal-treated cotton-tipped swabs and transported in a modified Stuart medium. *N gonorrhoeae* was cultured on a modified Thayer-Martin medium and identified by sugar fermentation tests.

## SEROLOGY

Before abortion and at follow-up examination serum samples were examined for chlamydial IgG antibodies by an enzyme-linked immunosorbent assay (ELISA).<sup>8</sup> The ELISA was performed on flat-bottomed microtitre plates coated with a suspension of partially purified cell-cultured *C trachomatis* sub-type LGV-2 particles. Antibody titres were expressed as the highest reciprocal serum dilution showing at least twice the mean absorbance value of a group of negative sera. A titre >1/8 was defined as a positive result. A four-fold or more rise in titre was regarded as evidence of actual chlamydial infection.

## Results

### CULTURE

Of the 218 patients, *C trachomatis* was isolated from the cervix in 30 (13·8%), *N gonorrhoeae* in six (2·8%), and both *C trachomatis* and *N gonorrhoeae* in two.

Seven of the 30 (23.3%) patients harbouring *C trachomatis* developed PID. All the infections occurred in the first two weeks after the abortion. None of the patients with cervical gonorrhoea developed salpingitis.

#### FOLLOW UP

Twenty-one of the 30 chlamydia-positive patients attended for follow up three months after the termination of pregnancy (table). Of the seven patients with pelvic infection, six attended (patients 1-6); four of these had an appreciable rise in chlamydial IgG antibody titre while two had raised but unchanged titres. A further four patients (Nos 7-10) had a four-fold or more rise in titre but no clinical evidence of infection.

TABLE Chlamydial IgG antibody titres in paired serum samples from 21 patients harbouring *C trachomatis* by an enzyme-linked immunosorbent assay before abortion and at follow up

Patient No	Serum IgG antibody titres	
	First sample*	Second sample†
1	32	128
2	8	32
3	8	32
4	128	512
5	32	32
6	64	64
7	<8	2048
8	8	512
9	32	512
10	32	256
11	16	16
12	8	8
13	32	32
14	<8	<8
15	<8	<8
16	32	32
17	128	128
18	32	32
19	128	128
20	64	64
21	<8	<8

\* Sample collected before abortion

† Sample collected at follow up

#### Discussion

The existence of pathogenic micro-organisms in the cervix before therapeutic abortion is of importance, particularly because of the risk of ascending infection. The incidence of chlamydial infection of the cervix in women undergoing termination of pregnancy is between 6% and 13%.<sup>9</sup> In the present study *C trachomatis* was isolated in 13.8% and *N gonorrhoeae* in 2.8% of patients.

Most chlamydial infections are confined to the epithelial cells of the mucous membranes of the genital tract. The antigenic stimulus is minimal and the humoral antibody response poor. The use of a

sensitive serodiagnostic test is, therefore, important. In the present study an ELISA, which has the same sensitivity and specificity as the single-antigen immunofluorescence test,<sup>4,8</sup> was used to detect chlamydial IgG antibodies. Of the 21 patients harbouring *C trachomatis* who were followed up, 17 (81%) had detectable chlamydial IgG antibodies; of these, eight had an appreciable rise in antibody titre. All the six patients who were followed up and developed salpingitis after termination of pregnancy had chlamydial antibodies. These results agree with those obtained by the micro-immunofluorescence test.<sup>10,11</sup>

The study indicates that patients harbouring *C trachomatis* in the cervix at termination of pregnancy are at high risk of developing postoperative infections and that *C trachomatis* is a major aetiological agent in salpingitis occurring after legal abortion. Routine screening for *C trachomatis* in the cervix before surgery is thus essential. Although only the chlamydia-positive patients were followed up in this study, all patients will be examined thoroughly before and after therapeutic abortion in future studies.

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